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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/016,057
Filing Date: November 02, 2001
Appellant(s): HUI ET AL.

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 9, 2007 appealing from the Office action mailed March 31, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct. It should be noted that claim 28 is deemed to be dependent on claim 1 and therefore mapping of claim 28 is not required as indicated in the notice of non-compliant appeal brief mailed on March 8, 2007.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

GB 2,191,585	KRAHE	06-1986
WO 91/05998	FOLLER	05-1991
6,156,267	PAI et al.	12-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-7, 9-10, 18-23 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Krahe GB 2,191,585 A.

Krahe teaches real-time monitoring of the concentration of an oxidizing sterilant, such as hydrogen peroxide, within a sterilization enclosure by placement therein of a sensor (thermocouple junction (12)), which is at least partially formed from a material (platinum) which exothermically reacts with the sterilant, creating temperature differential proportionate to the sterilant concentration that is measured by an electrical component such as voltage. The sensor (12) is electrically connected to monitor and control means (48) such that the parameters of sterilization are adjusted based on the

concentration information from the sensor (see page 1, lines 76-121). Krahe further teaches the provision of two sensors (thermocouple junctions 12 and 18), one providing the control, or ambient, information needed for the basis for comparison to the concentration sensor (see page 2, lines 35-50). The sensors are temperature sensitive, such as thermocouples or thermistors, which are coated with reactive material (platinum) (see page 2, lines 35-50, page 3, lines 31-36 and lines 67-130).

Claims 1-3, 9-10, 18-19 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Foller WO 91/05998.

Foller teaches real-time monitoring of the concentration of an oxidizing sterilant within a sterilization enclosure by placement therein of a sensor (sensor (5)) formed from a material (platinum) which exothermically reacts with the sterilant, creating temperature differential proportionate to the sterilant concentration that is measured by an electrical component such as voltage (see page 1, lines 13-14; see page 3; see page 4, lines 1-5). The sensor (sensor (5)) is electrically connected to monitor and control means (block (21), processing unit (23), and display device (25)) such that the parameters of sterilization are adjusted based on the concentration information from the sensor (see pages 6, 8 and 9). Foller further teaches the provision of two sensors (sensors (5 and 6)), one providing the control, or ambient, information needed for the basis for comparison to the concentration sensor. The sensors are temperature sensitive, such as thermocouples or thermistors, which are coated with reactive material (see page 3, page 4, lines 1-5, page 6 and pages 8-9).

Claims 11-17 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Foller or Krahe, in view of Pai et al., U.S. patent No. 6,156,267.

Foller or Krahe are applied as set forth above.

Pai et al. teach the provision of sterilant concentration sensors (48) within a barrier enclosure (housing (10)) of a load-simulating device for real-time control of the sterilization process (see col. 3, lines 25-35 and lines 45-68; see col. 4, lines 42-50). The barrier enclosure (housing (10)) is impermeable to microorganisms, while permeable to the sterilant vapor. The sensor (48), which can be a thermocouple configuration, is inserted within the barrier enclosure (10), while being electrically connected (via connector (42)) to the exterior of the sterilizer for interaction with the microprocessor control means to facilitate effective, complete sterilization based on real-time measurement. The provision of the sensor (48) within the enclosure (10) allows for optimal determination of complete, effective sterilization such that the process can be timed with accurate precision (see col. 3,lines 25-68; see col. 4, lines 41-49; see col. 5, lines 55-68, col. 11, lines 1-15, and col. 12, lines 20-25).

It would have been obvious to one of ordinary skill in the art to configure the placement of the sensors of either Foller or Krahe, within a barrier enclosure of a load-simulating device as taught in Pai et al., because it would ensure complete, effective sterilization because it would provide for control to account for all parameters of diffusion restricted devices to be sterilized.

(10) Response to Arguments

A. <u>The rejection of claims 1 to 7, 9, 10, 18 to 23 ad 25 under 35 U.S.C. 102(b) over Krahe (GB 2,191,585)</u>

Regarding claims 1 and 18, Applicant argues that Krahe fails to anticipate the claimed invention because Krahe does not teach the generating and measuring a net voltage to determine a concentration of an oxidative vapor.

These arguments are not persuasive. First, Applicant's arguments regarding the steps of generating and measuring are not commensurate in scope with claim 1. Claim 1 is an apparatus claim and Applicant's arguments regarding the steps of generating and measuring are directed to process limitations. In addition, Applicant's arguments regarding the steps of generating and measuring are not commensurate in scope with claim 18. Claim 18 discloses the step of generating and measuring a net voltage <u>as an indication</u> of the concentration of the oxidative gas or vapor and does not disclose the step of generating and measuring a net voltage <u>to determine</u> a concentration of an oxidative vapor.

Krahe fully meets the claim limitations. Note that the 1st and 2nd junctions are (12, 18), respectively. These junctions measure temperature through voltage. As a result of the difference in temperature of the two junctions, a net voltage is generated across the junctions. This difference is what the controller uses to determine the actual temperature and therefore the concentration of the gas or vapor.

Applicant further states that as is shown by figure 2, each temperature sensor is independently tied back to the controller. However, this is merely a statement and not

an argument. Additionally, there is no relevance of this statement in regards to the claim limitations.

Regarding claims 3 and 19, Applicant argues that Krahe fails to anticipate claims 3 and 19 because the invention of Krahe does not disclose generating a net voltage, and fails to show a zero net voltage when the chemical substance is not exposed to the oxidative vapor. This argument is not persuasive. First, the argument is not commensurate in scope with claim 3. Claim 3 is an apparatus claim and the arguments are directed to process limitations. Regarding claim 19, it is inherent that the net voltage between the temperature sensors is zero when the chemical substance is not exposed to the oxidative gas or vapor because no reaction is occurring between the chemical substance and the oxidative gas or vapor and thus no change in temperature or voltage.

Regarding claims 9, 10 and 25, Applicant states that claims 9 and 25 define a carrier which couples the chemical to the thermocouple and claim 10 defines a heat conductor between the chemical and the thermocouple. Applicant argues that Krahe lacks such teaching. The examiner disagrees. Regarding claims 9 and 25, Krahe discloses that a resistive element (12), which is wound around core (14), will interact with the concentrate being sensed. The resistive element (12) contains platinum which is the chemical substance that reacts with the hydrogen peroxide vapor (see page 2, lines 33-49). Krahe specifically discloses that the resistive element contains material other than platinum. This other material is the carrier for the platinum (see page 2, lines 50-54). Regarding claim 10, the Applicant's arguments are not commensurate in scope

with the claim. Claim 10 requires a heat conductor between the chemical substance and the first thermocouple junction, not between the chemical substance and the thermocouple as argued by the Applicant. Furthermore, it is noted the heat conductor in Krahe is the wire element (12).

B. <u>The rejection of claims 1 to 3, 9, 10, 18, 19 and 25 under 35 U.S.C. 102(b) over Foller (WO 91/05998).</u>

Regarding claims 1 and 18, Applicant argues that Foller fails to anticipate the claimed invention because Foller does not teach the generating and measuring a net voltage to determine a concentration of an oxidative vapor. Applicant further states that as is shown by figure 1, each temperature sensor is independently tied back to the controller.

These arguments are not persuasive. First, Applicant's arguments regarding the steps of generating and measuring are not commensurate in scope with claim 1. Claim 1 is an apparatus claim and Applicant's arguments regarding the steps of generating and measuring are directed to process limitations. In addition, Applicant's arguments regarding the steps of generating and measuring are not commensurate in scope with claim 18. Claim 18 discloses the step of generating and measuring a net voltage <u>as an indication</u> of the concentration of the oxidative gas or vapor and does not disclose the step of generating and measuring a net voltage <u>to determine</u> a concentration of an oxidative vapor. The reference Foller fully meets the claim limitations a set forth above in the rejection.

Applicant further states that as is shown by figure 1, each temperature sensor is independently tied back to the controller. However, this is merely a statement and not an argument. Additionally, there is no relevance of this statement in regards to the claim limitations.

Regarding claims 3 and 19, Applicant argues that Foller fails to anticipate claims 3 or 19 because Foller fails to disclose generating a net voltage, and fails to show a zero net voltage when the chemical substance is not exposed to the oxidative vapor. This argument is not persuasive. First, the argument is not commensurate in scope with claim 3. Claim 3 is an apparatus claim and the arguments are directed to process limitations. Regarding claim 19, it is inherent that the net voltage between the temperature sensors is zero when the chemical substance is not exposed to the oxidative gas or vapor because no reaction is occurring between the chemical substance and the oxidative gas or vapor and thus no change in temperature or voltage.

Regarding claims 21-23, Applicant argues that Foller fails to anticipate claims 21-23 because Foller is concerned with ozone and specifically picks materials non-reactive with other chemicals. This argument is not persuasive because Foller discloses the use of platinum as the chemical substance that reacts with the gas stream being monitored (see page 4, lines 8-10, page 5, lines 20-23). Platinum is a chemical substance that reacts with hydrogen peroxide, is oxidized by hydrogen peroxide, and catalytically decomposes hydrogen peroxide (it is noted that this is evidenced in Krahe, see page 2, lines 33-56)

C. The rejection of claims 11 to 17 and 26 to 29 under 35 U.S.C. 103(a) over either Foller or Krahe, in view of the Pai et al. US Patent No. 6,156,267.

Applicant argues that adding Pai et al. to either Foller or Krahe fails to solve the problem that none of these three references teach the limitation of measuring a net voltage between the two thermocouples, one having the chemical substance and one lacking it, rather than measuring them separately. This argument is not commensurate in scope with the apparatus claims since this argument is directed to process limitations. Furthermore, this argument is not commensurate in scope with the claims because the claims are directed to first and second thermocouple junctions and not two thermocouples. The references Foller or Krahe fully meet the claim limitations as set forth above.

The Applicant further argues that a thermocouple is not the provision of a first and a second junction connected serially, as argued by the Examiner. The Applicant further states that as explained in Von Nostrand, a thermocouple is a junction of two dissimilar metals and with one junction of the two dissimilar metals you make one thermocouple. This argument is not persuasive. Von Nostrand clearly teaches that a thermocouple includes a measuring junction and a reference junction (see the definition of "thermocouple" by Von Nostrand, also see figure 1 under the definition of "thermocouple" which clearly shows a first junction at T_1 and a second junction at T_2)

The Applicant further argues that the Applicant claims two thermocouples, and specifically two thermocouples wherein a relative temperature differential between the two is found by measuring the voltage difference between the two rather than

measuring a first temperature and a second temperature and then calculating the difference. This argument is not persuasive because it is not commensurate in scope with the claims. The Applicant claims a *first thermocouple junction* and a *second thermocouple junction* (see claims 1 and 18) and not two thermocouples as argued above.

Regarding claim 26, the Applicant argues that none of the references teach using a gas permeable pouch to attach the chemical to the thermocouple. This argument is not persuasive because Foller discloses that the platinum resistance thermometer is first encapsulated in a ceramic housing (gas permeable pouch or enclosure) and then the chemical substance, which is the catalyst, is deposited onto the external surface of the ceramic housing (see page 4, line 24 to page 5, line 25).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Patent Examiner 1797

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